

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1- 3 (Canceled).

4. (Previously Presented) A free-floating core for use in investment casting of a turbine airfoil part, the airfoil part having at least one internal cavity and said core including at least one portion that produces a print-out region forming at least a portion of said internal cavity, comprising:

a free-floating core piece having one or more datum pad producing regions integral to the core piece for forming a datum structure on said print-out region of said cast airfoil part, said datum structure being independent of shell mold features, wherein said datum pad or pads serve as a relative position reference system for spatially locating other resultant cast features produced within said internal cavity by said free-floating core, said reference system for use in machining or gauging of core-generated internal cavity features of the airfoil part.

5. (Previously Presented) The free-floating core of claim 4 wherein said one or more datum pads are located on portions of the core print-out that extend outside of said external cavity and are suitable for removal by machining or other means.

6. (Previously Presented) A method of fabricating a hollow cast article having a plurality of datum pads which serve as a spatial reference system for enabling precision machine tooling

of the cast article, said method based at least in part on an investment casting process using a free-floating core piece, comprising:

forming a free-floating core structure having a plurality of integral positive or negative datum regions for producing datum pads on an investment cast article, wherein said plurality of datum regions are integral to a portion of the core structure that is responsible for producing a core print-out region or flashing region of the cast article that may be removed via subsequent machining;

molding a fugitive material pattern of said article around said core structure;

producing an investment casting of said fugitive material pattern and core structure;

removing the core structure from the casting;

performing machining operations on internal core-produced features of the cast article, wherein the datum pads are used as a spatial reference system for precisely locating said internal core-produced features.

7. (Previously Presented) The method of claim 6 further comprising removing said core print-out or flashing region containing said datum pads.

8. (Previously Presented) The method of claim 6 wherein the core is ceramic.

9. (Previously Presented) The method of claim 6 wherein the datum regions are located at a portion of the core forming an internal cavity portion of the casting.

10. (Previously Presented) A method of investment casting using a free-floating core piece for casting internal structural features of a hollow turbine airfoil or nozzle part, wherein precision machining and/or gauging of said internal core-produced structural features is facilitated, comprising:

forming a free-floating core structure for use in casting said airfoil or part, said core structure having a plurality of integral datum regions for producing datum pads on a cast part, wherein the datum pads are used as a geometric spatial reference system for precisely locating said internal core-produced features.

11. (Previously Presented) A method for ascertaining the location of core-generated internal structural features in a hollow investment-cast article for gauging and/or machining said features, said article cast using a free-floating core, comprising:

providing a free-floating core having an integral core-based reference datum scheme comprising one or more datum pad producing portions that result in producing one or more datum pads on a core-generated print-out or flashing portion of a cast article, wherein said core-based reference datum scheme is exclusive of any reference datum scheme based upon non-core-generated exterior features of said cast article;

using the datum pads produced on said print-out or flashing portion of said hollow article as a spatial reference system for ascertaining the relative location of internal core-produced features of said investment-cast article.

12. (Previously Presented) The method of claim 11 wherein said one or more datum pads are formed on a core-generated print-out or flashing portion of said cast article that is removed during a subsequent machining operation.

13. (Previously Presented) The method of claim 11 wherein said investment-cast article is a gas turbine airfoil or nozzle part having internal air-cooling passages and said one or more datum pads are formed on an internal cavity portion of said part.